

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Appl. No. : 10/585,368
Applicant(s): Mathias Wendt, et al.
Filed: July 5, 2006
TC/A.U.: 2800/2836
Examiner: Adi Amrany
Atty. Docket: DE 040014
Confirmation No.: 2478
Title: DECENTRALIZED POWER GENERATION
SYSTEM

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Examiner's Answer mailed on December 10, 2009, Applicants provide herewith a timely filed Reply Brief.

The Reply Brief directly addresses the Response to Arguments presented in the Examiner's Answer beginning on page 8 thereof. Applicants' position stated in the Appeal Brief is maintained.

I. The rejection under 35 U.S.C. § 112, ¶1

The Examiner's Answer asserts that the disclosure in Applicants' specification that the DC/DC converters basically require no buffering of energy does not provide support for the limitation that none of the DC/DC converters are configured to buffer energy. Applicants respectfully disagree.

The Courts have long explained that the written description requirement of § 112 requires the application to "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*." *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991); *see also In re Wright*, 866 F.2d 422, 424 (Fed. Cir. 1989) ("When the scope of a claim has been changed by amendment in such a way as to justify an assertion that it is directed to a *different invention* than was the original claim, it is proper to inquire whether the newly claimed subject matter was *described* in the patent application when filed as the invention of the applicant. That is the essence of the so-called 'description requirement' of § 112, first paragraph. . . ."). The claimed subject matter need not be described "in haec verba" in the original specification in order to satisfy the written description requirement. *In re Wright*, 866 F.2d at 425. Rather, the test is whether a person of ordinary skill in the art would recognize that the applicant possessed what is claimed in the filed application as of the filing date of the filed application. *Noelle v. Lederman*, 355 F.3d 1343, 1348 (Fed. Cir. 2004). The same standards govern whether new matter has been added to the specification. *See TurboCare*, 264 F.3d at 1118.

Applicants again direct attention to the filed application, which discloses, in relevant part:

"...it is an advantage of the invention that high direct currents provided by the power generating units do not have to be transferred a long way to a central power receiving unit, since the high direct currents can be converted immediately by the DC/DC converter associated to the respective power generating unit. Further, the invention enables a particularly simple modular and extendible mounting of the system.

...it is an advantage of the invention that those components of the system which are subject to adverse environmental conditions, for instance on a roof, can be constructed without electrolyte capacitors and thus in a way which ensures a long life and a high reliability. That is, the DC/DC converters can be arranged close to the power generating units, which may be subject to adverse environmental conditions, while the more

sensitive power receiving component can be arranged at a sheltered location. Expensive components in the DC/DC converters can be avoided...

The presented PV power plant has further the advantage that the DC/DC converters 31, 32 required basically no buffering of energy. Therefore, no electrolyte capacitors, which reduce the durability of a device, are required in the DC/DC converters 31, 32.”

(See page 5, lines 15-25, and page 11, lines 1-4 of the filed application).

Applicants respectfully submit that one of ordinary skill in the art would have recognized that Applicants had in their possession DC/DC converters that basically do not require energy buffering, due to the immediacy of the conversion of high DC currents by the DC/DC converters associated with a power generating unit. Beneficially, therefore, electrolytic capacitors, which can be used to buffer energy, are not required. Moreover, and as described in the filed application beginning at page 9, line 18:

“The DC/DC converters 31, 32, which receive their supply voltage from the respectively connected PV modules 11 to 14, survey the voltage provided by the PV modules 11 to 14. As soon as a predetermined threshold value is reached or exceeded by the voltage supplied by a specific series connection of PV modules 11 to 14, the associated DC/DC converter 31, 32 carries out a voltage conversion. Using the conventional MPP tracking, the input current to this DC/DC converter 31, 32 is set such that the connected PV modules 11 to 14 are operated in the bend of the characteristic curve, i.e. in the MPP. The MPP tracking is thus performed separately for each series connection of PV modules 11 to 14.”

As such, the setting of a predetermined threshold value and the meeting or exceeding of this voltage by a specific series connection of the photovoltaic modules 11-14, results in a voltage conversion by the DC/DC converter 31, 32. So, no buffering of energy is required; but rather a voltage conversion upon attaining a threshold is effected.

Finally, Applicants have reviewed the Examiner’s assertion regarding the buffering of energy (see pages 8 and 9 of the Examiner’s Answer). Applicants respectfully submit that one of ordinary skill in the art would not agree that every electrical component buffers energy; and would specifically recognize that resistors only have energy traversing therethrough when a current passes through the resistor, and do

not buffer energy. By contrast, a capacitor will retain charge, and therefore will buffer energy. Often, capacitors are included in circuits just because of their ability to store energy. As such, whereas a capacitor does buffer energy, not all components of an electrical circuit can be fairly stated to do so.

II. The rejections under 35 U.S.C. § 103

Applicants again respectfully submit that *Jepsen, et al.* does not disclose DC/DC converters that do not require energy buffering. The Office Action asserts that the threshold voltage is obvious in view of the reference to *Jepsen, et al.* The final Office Action states:

“The DC/DC converter will not have any power to convert when a source is not supplying any power (during nighttime). The “threshold voltage” of Jepsen is interpreted as zero (0) volts. With zero volts, the power input to the converter also zero ($P=V \cdot I$). Once a source begins to actually supply power (par.43, lines 1-5), the converter will convert a current supplied by that source.”

At the outset, Applicants note that paragraph [0043], lines 1-5 of *Jepsen, et al.* do not describe a threshold voltage, but rather describes a DC/DC module A connected to a DC-bus 3 and the feeding of energy into the DC-bus:

“FIG. 1 shows how a DC/DC-module A is connected to a DC-bus 3, which is common to several other DC/DC-converters. They are all feeding energy into the DC-bus, and DC/AC-inverter B taps the DC-bus and converts the energy into a grid voltage and grid frequency.”

However, neither in the portion of the applied art to which Applicants are directed, or elsewhere is there a disclosure ***a threshold voltage***, or of the associated DC/DC converter’s ***being configured to convert a current provided by power generating units***. Moreover, the Office Action sets the threshold voltage of *Jepsen, et al.* at zero volts, yet there is no disclosure or description of this in the noted portion of the applied art or elsewhere. Finally, there is no basis provided as to why a threshold voltage is obvious in view of *Jepsen, et al.* The mere fact that the devices of *Jepsen, et al.* are

capable of activity during the day, as opposed to night, is not the same as requiring that a certain voltage be attained before becoming active. Stated somewhat differently, by contrast to *Jepsen, et al.*, the DC/DC converter of claim 10 will not convert power only when they are capable of doing so, but rather only when a *voltage supplied from a respective power generating units meets or exceeds a **threshold voltage***.

Beginning at page 10, the Examiner's Answer asserts:

"Jepsen discloses that the power source is a solar cell (abstract, lines 1-3; fig. 2; "PV." It would have been obvious to one skilled in the art that a solar cell does not produce power (current or voltage) at night. Since there is no sunlight at night, there is no power for the Jepsen DC/DC converters (fig. 2, item A) to convert. During the daylight hours, the solar cell will begin to produce power. Once there is power to produce, the Jepsen converters can begin to provide power to the DC bus (item 3)."

At page 11, the Examiner's Answer asserts:

"The Examiner admits that Jepsen does not use the word "threshold" with reference to the operation of the DC/DC converters. As discussed above, the solar cells do not provide power at night, but they do provide power during the day. Therefore, the Jepsen DC/DC converters are not active during the night, while during the day they are active. Thus, a threshold would have been obvious. Since the claim was rejected under § 103(a) it is not necessary that Jepsen explicitly disclose a threshold voltage."

Again, Applicants respectfully submit that the Examiner's Answer is equating with the capability of effecting power conversion with the meeting of a threshold value. Applicants respectfully submit that the mere capability of effecting a conversion during the day (as opposed to night) is not the same as effecting a conversion upon the meeting of a threshold voltage, and as such, Applicants respectfully demur the assertion that *Jepsen, et al.* discloses a threshold voltage as specifically recited in the claims on appeal. The mere fact that the devices of *Jepsen, et al.* are capable of activity during the day, and incapable of this activity at night, is not the same as requiring that a certain voltage be attained before becoming active.

Finally, at page 13, the Examiner's Answer states:

Appellants' arguments consistently refer to replacing only the Jepsen DC/AC converter. This state misquotes the Examiner's art rejection of the claims. Appellants argue that the combination of reference will not result in the desired function of not buffering energy. As discussed in the §112(1) rejection, the art rejection of the claims will not treat the limitation of not buffering energy. Rather, the claims are interpreted as reciting that the DC/DC converters do not include capacitors. It is respectfully noted that the Examiner's reasons for combining references does not have to match the appellants' stated goal. The Examiner maintains that the references are properly combined.

Applicants direct attention to page 7, lines 15-16 of the final Office Action, which state:

“At the time of the invention by applicants, it would have been obvious to replace the DC/AC and AC/DC converters disclosed in Jepsen with the DC/DC disclosed by Vinciarilli in order to reduce the number of parts in the converter.”

As such, Applicants respectfully submit that the quoted substitution is not in error in their Brief.

Conclusion

In view the foregoing, applicant(s) respectfully request(s) that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application in condition for allowance.

If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted on behalf of:
Phillips Electronics North America Corp.

/William S. Francos/

by: William S. Francos (Reg. No. 38,456)

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Volentine & Whitt, PLLC
Two Meridian Blvd.
Wyomissing, PA 19610
(610) 375-3513 (v)
(610) 375-3277 (f)